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ABSTRACT

Research has demonstrated that perceived health, while related to objective determinants of health, is a separate determination of individuals using different information than others. To investigate the relationship of ego development to perceptions of health, 192 subjects (64 college students, 64 adult community residents, and 64 retired older adults) completed two measures of ego development and four measures of health status and well being. An analysis of the results showed that subjective well being and an awareness of actual health problems were significant predictors of the self-rating of health for college students and retired older adults. Among community residents, increased educational status and more complex ego development levels were associated with positive self-ratings of health. Endorsements on self-report health measures varied significantly according to complexity of ego development, with more complex people endorsing items reflecting better health status. These findings suggest that the self-rating of health represents an assessment of individuals' satisfaction with their current level of coping with health problems. (Author/BL)

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Relationship of Ego Development to Perception of Health

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Running head: EGO DEVELOPMENT AND THE PERCEPTION OF HEALTH

Abstract

Ego development was selected as a personality construct to employ in a study of variables influencing the self-rating of health. The investigation included 192 subjects from three age groups: college age, community residents, and retired people. Significant predictors of the self-rating of health were found to be subjective well-being scores and an awareness of actual health problems for college students and retired subjects. Among community residents, increased educational status and more complex ego development levels were associated with positive self-ratings of health. Endorsements on self-report health measures varied significantly according to complexity of ego development, with more complex people endorsing items reflecting better health status. It was proposed that the self-rating of health represents an assessment of the individual's satisfaction with their current level of coping with health problems.

Relationship of Ego Development to Perception of Health

The self-rating of health, particularly among the elderly, has been found to differ in a consistent percentage of cases from the global rating assigned by a physician to the same individual (Tissue, 1972). Self-ratings also differ from those given by significant others, such as spouses (Briscoe, 1978), or by an observer (Dickie, Ludwig, and Blauw, 1979). Regardless of condition, older adults consistently rate their health to be fair or good, usually better than other people would assess it. This is surprising given the high incidence of chronic disease and pain among the elderly. Research has demonstrated that "perceived health," while related to objective determinants of health status, is a separate determination made by individuals using different information than do physicians or others (LaRue, Bank, Jarvik, and Hetland, 1979; Suchman, Phillips, and Streib, 1958; Tissue, 1972). The term self-rating (or self-assessment) of health shall be used in this study to describe the single summary response combining elements of functional capacity (objective criterion) and evaluative (subjective) perception given by subjects when asked to give a global description of their health.

It is important to be aware of an individual's assessment of their own health, as this "health identity" influences the adoption by the individual of the sick role and the subsequent altering, usually curtailing, of physical and social activity (Maddox and Douglass, 1973). It would be useful to determine what factors contribute to the prediction of health ratings, as such ratings could have implications for patient response to health care directives (Murray, Dunn, Williams, and Tarnopolsky, 1981), as well as the sense of enjoyment these individuals obtain from their lives. The self-rating of health has been found to be the most powerful predictor of life satisfaction among the elderly (Dickie et al., 1979; Palmore and Luikart, 1972). Older adults' health ratings also are correlated highly with utilization of health care services (Graney and Zimmerman, 1980-81). The self-rating of health has been employed in studies to predict aspects of illness behavior, such as physician consultation and drug consumption (Murray et al., 1981), the reporting of physical complaints (Mechanic, 1980), and to predict mortality (LaRue et al., 1979).

The components of self-assessments of health in old age have become increasingly specified. Current research results indicate that the most powerful predictor of self-rated health is actual objective health status (Fillenbaum, 1979; Tessler and Mechanic,

1978). For example, measures of functional capacity (ease of mobility) or behavioral correlates of health status (days spent in bed or number of medicines taken) correlate more highly with self-ratings of health status (r's of .4 to .6) than do global physician ratings. Other research has focused on the contribution of social status, social participation, activity level, and personal attitudes. In combination, these sociological variables and social-psychological variables have been found to be equally as important in determining health ratings as are physiological-medical factors (Graney and Zimmerman, 1980-81). As much variance in the self-rating of health remains unexplained, it may be useful to examine the role of personality and cognitive factors in this area.

Individual characteristics such as personality structure may exert an influence on the life change/health change relationship, which will manifest itself in health ratings. The most frequently studied personality variable in conjunction with the self-rating of health has been subjective well-being (Larson, 1978), although other indices of mental health have been studied in relation to the self-rating of health (Garrity, Somes, and Marx, 1978; Vaillant, 1979). Subjective well-being scores have been found to be related to stable personality characteristics, disputing the claim that they measure transient mood states (George, 1978). The purpose of

the present study was to use subjective well-being as an independent rather than a dependent variable in relation to the self-rating of health, and to introduce a previously uninvestigated personality construct in the area of the self-assessment of health, namely, ego development.

The nine developmental levels posited by Loevinger as comprising the sequence of ego development have been described adequately elsewhere (Loevinger, 1976 & 1977). The following one word descriptors or single phrases will suffice to portray the levels of ego development.

I-2 (Impulsive): demanding, dependent, wishful, conceptually limited

Delta (Self-Protective): manipulative, opportunistic, hedonistic, externalizes blame

Delta-3: concrete orientation to stereotyped sex roles, concern with appearance and with cleanliness

I-3 (Conformist): conventional, moralistic, values group standards, strict adherence to rules, banal inner states

I-3/4 (Self-Aware): heightened awareness of feelings, appreciation of multiplicity, exception, and contingency

I-4 (Conscientious): reflective, responsible, achievement oriented, appreciates psychological causation, experiences differentiated emotions

I-4/5 (Individualistic): tolerant, values interpersonal relationships, deepening appreciation of irony and paradox

I-5 (Autonomous): perceives and tolerates ambiguity, cherishes autonomy of self and others, concern with fulfillment

I-6 (Integrated): consolidated identity, transcends conflict and reconciles polarities

Thematic components common to both the literature of ego development and the self-rating of health include cognitive complexity, perceptual framework, and selective perception. Mechanic (1979) stresses the importance of "cognitive definitions" in the development of individuals' organizing hypotheses about health. The differences in cognitive complexity which mark the various stages of ego development may be reflected in the differing organizing hypotheses with which people interpret their bodily sensations.

Tissue (1972) has termed the self-rating of health to be "a summary statement about the way in which numerous aspects of health, objective and subjective, are combined within the perceptual framework of the individual respondent" (p. 93). The psychological construct of ego development, itself a frame of reference for approaching one's world, may be influential in determining individuals' perceptions of their health and also may

have implications for health practices.

At different levels of ego development, people selectively attend to and emphasize different aspects of their world. Less complex individuals focus on more physiological, somatic concerns as a way of interpreting and responding to their environment, while persons of more complex levels of development exhibit a psychological approach and interpretive strategy. Evidence supporting the differential endorsement of symptom tendencies has been found in research unrelated to ego development. Socially conforming people tend to endorse physical symptoms over psychological symptoms, as the former are considered to more socially acceptable (Mechanic, 1980). One could hypothesize that people of less complex levels of ego development (those more socially conforming, particularly at the Conformist Stage) would be less likely to report psychological complaints but more likely to endorse physical complaints, whether on global measures or on checklists featuring specific complaints.

Ego development may also be related to the self-rating of health through individuals' selected coping strategies. Michaelson (1981) suggested that people at the post-conformist level are more effective in coping than those at the conformist level. He reported that conformists experienced a greater number of

stressful life events. Michaelson suggested that post-conformists had fewer life events to cope with because they were better able to anticipate and prevent stressful life events from occurring. Ego development may very well contribute to individuals' behaviors or coping styles which work successfully to maintain good health through positive health habits. When faced with stress (reactions to which may be interpreted as illness) people must appraise their situation and respond to the stressful experience. Individuals with more coping skills (those with more complex levels of ego development) would be better prepared to successfully cope with stress and learn to function in an adaptive manner. Mechanic (1980) states that external coping strategies, not intrapsychic sensitivity. must be taught to somaticizers or those who react to situational stress by becoming overly sensitized to bodily sensations. This supports a coping deficit model of health problems.

More complex people would select appropriate coping strategies that would aid them in averting or better coping with health problems than would those selected by less complex individuals. One could hypothesize that less complex people would not only see themselves as being less healthy than more complex people, they also would be less healthy according to more objective standards because of poor health practices.

The hypotheses of the present study may be stated more formally as follows:

1. Less complex people, according to the ego development paradigm, will tend to endorse more physical complaints on a health problems checklist and the somatization scale of a symptoms checklist than people of more complex stages of ego development.

2. Less complex people will rate their health as poorer than more complex people, given equivalent degrees of health concerns as determined by a physician.

3. Less complex people will evidence higher scores on a measure of subjective well-being and lower scores on scales of a symptoms checklist measuring psychological distress than will more complex individuals.

Method

Subjects

The study involved 192 people, the large majority being residents of a Midwestern community. Thirty-five subjects were from other communities, primarily in the same state, similar in size and in socioeconomic conditions to the main community. Approximately one-half of the subjects were relatives, friends, or acquaintances of the interviewers; the remaining subjects were unacquainted with the interviewers previous to the time of the

interview. Names of these latter subjects were obtained by referrals made from subjects who had already completed an interview. All except three subjects were Caucasian. No subject received compensation for participating in the study.

Sixty-four subjects (32 of each sex) were recruited in each of the three age groups: College age, including anyone actively pursuing a diploma or degree at an educational institute (age range in sample: 16-29 years, mean = 20.45); Community resident, anyone holding a full time job either within or outside an academic setting, including homemakers (range: 23-61 years, mean = 40.89); and Retired, anyone past the age of 65 who was no longer working full time (range: 56-91 years, mean = 73.31). Subjects not employed because of their disability were included in this category.

Insert Table 1 about here

The majority of elderly subjects were living independently in the community, but nine subjects were solicited from full care nursing homes. Although the ethnic and socioeconomic characteristics of the sample reflected an academic environment attempts were made to solicit a broad range of subjects as to income, educational status, and presence of chronic ailments. As one might expect, it was difficult to find a broad range of chronic ailments among the younger age groups. Among college age people, the most frequently listed ailments (endorsed by 25% or more of respondents), other than minor visual or dental complaints, included allergies, skin

problems (other than acne), and unspecified back problems. The community sample listed all of the college age ailments but also endorsed arthritis and rheumatism. The retired sample listed all the previously stated ailments, but added hearing difficulties and hypertension.

Instruments

Ego development. Ego development was assessed by using the newly revised form (Form 81) of the Washington University Sentence Completion Test of ego development (SCT). The SCT is a projective test designed by Loevinger and her co-workers (Loevinger and Wessler, 1970; Loevinger, Wessler, and Redmore, 1970) to assess ego level. It features 36 sentence stems usually completed in writing by the subject. Male and female forms differ mainly in the use of pronoun gender. Topics of stems include interpersonal relations, feelings about the self and others, and perceptions of problems and social situations. Scoring is done for each item separately, and a total protocol rating is made based on cumulative ratings following an ogive paradigm. Extensive information on the reliability and construct validity of the SCT is available (Bonneville, 1978; Hauser, 1976; Hoppe, 1972; Loevinger and Wessler, 1970; Loevinger, 1979; Redmore and Waldman, 1975).

Intelligence. Intelligence was assessed by administration of selected subscales of the Wechsler Adult Intelligence

Scale-Revised (WAIS-R) (Comprehension, Vocabulary, Block Design, and Object Assembly). These subscales were selected by the basis of their high correlations with Verbal and Performance Scale IQ scores in a study using elderly subjects (Britton and Savage, 1966). Simple prorating procedures were used to convert scale scores into standard IQ scores.

Objective health status. An objective measure of health status was obtained from the health problems checklist, which features 65 common (usually chronic) health problems (although subjects can list additional problems). Such checklists are included frequently in studies to obtain information on objective health condition (Tessler and Mechanic, 1978).

Acutely ill subjects were screened out, so the health problems endorsed on the checklist by the subjects in the study tended to be more chronic in nature. The personal physicians of a randomly selected group of subjects were mailed the identical health problems checklist and asked to complete it assessing their judgment of their patient's condition. Seventeen physicians supplied information about their patients (11% of original sample).

Subjective health status. To assess the dependent variable of subjective health assessment, subjects were asked to rate their health on a five-point scale in comparison to people their own age (excellent, good, fair or average, poor, or very poor). Such a scale has been used

frequently to obtain self-report ratings (Kivett, 1979; LaRue et al., 1979).

Psychological well-being. The Bradburn Affect Balance Scale (ABS) was selected for use as a short, easily administered, and global measure of how subjects perceive their psychological well-being (Bradburn and Caplovita, 1965). It is a ten item, yes-no format scale designed to assess the balance between positive and negative affect. Its reported test-retest reliability is high, .80 to .97 (Bradburn, 1969). In a study designed to validate the ABS on an elderly sample, the scale significantly correlated with three other adjustment scales, supporting its validity as a measure of mental health (Moriwaki, 1974). As a global measure of subjective well-being, the ABS was included in this study as an independent variable to predict health self-assessments.

Symptom pattern. The SCL-90-R (symptom checklist, revised) was included to tap more appropriately the physical/psychological distress continuum (Derogatis, 1977). The SCL-90-R is a 90-item self-report inventory designed to primarily reflect the psychological symptom patterns of psychiatric and medical patients, although normative data is available for normal populations.

Each item of the SCL-90-R is rated on a 5-point scale of distress (0-4), ranging from "not-at-all" at one pole to "extremely" at the other. The test is scored and interpreted in terms of nine primary symptom dimensions and three global indices of distress. Of particular

interest in the present study was the Somatization scale. Reports on convergent validity (with MMPI clinical scales), discriminative validity and construct validity, suggest that the SCL-90-R, as an empirical measure, correlates well with established and accepted external criterion measures. The SCL-90-R was included in this study as a dependent measure to tap the rate of endorsement of items pertaining to somatization and psychological distress.

Demographics. A short questionnaire was administered to obtain basic data on educational level, occupation and income. Educational level, measured in eight discrete categories based on number of years education completed, was selected as the measure of SES.

Procedure

Subjects were interviewed in the fall of 1982 or spring of 1983. Subjects who consented to an interview were visited at their place of residence or work by the major investigator or one of ten female undergraduate research assistants. Each interview was completed in one session, the average time being required between one and one-half to two hours. Materials were presented in the following order for each interview: consent forms, demographic questionnaire, self-rating health scale, health problems checklist, WAIS-R subscales, ABS, SCT, debriefing statement. All materials were presented in narrative form except for the consent form and appropriate portions of the SCT (to test a separate hypothesis of possible differing responses to oral

and written presentations of the SCT).

Follow-up interviews for a randomly selected group of 64 subjects (33% of original sample) included an informed consent statement and the SCL-90-R. These follow-up contacts were made in late spring of 1983 after the completion of all the initial interviews.

Scoring

Before rating began on the SCT, subjects' names were removed from protocols and substituted with a code number. Oral and written protocols were typed and mixed together so that scorers did not know which responses were obtained through which methods. Typed responses were as closely similar to originals as possible, preserving misspellings, crossed-out words, etc. A list was typed of responses for each item for men and women. A separate protocol was typed additionally for each person, featuring all responses on the standard two-page SCT form.

WAIS-R subscales were scored by each interviewer and double-checked and corrected by the major investigator. Scores were prorated to obtain Verbal and Performance Scale IQ scores. Individual item ratings and total protocol ratings for ego development were scored by ten trained raters, the major investigator plus one graduate and eight undergraduate students. All the students had been trained to score the SCT by the major investigator during an eight-week training program conducted early in 1983.

For individual item ratings, two scorers rated each response. Disagreements were compromised between the two raters. The separately derived rating assigned to the total protocol was derived following Loevinger's rules (Loevinger and Wessler, 1970). As no reliable oral and written differences were noted between test halves, the derived total protocol rating can be considered a valid measure of subjects' levels of ego development (Streich, 1984).

Results and Discussion

Rater Reliability

Each rater rated at least six items from both men's and women's responses. For the protocols in the study, the mean percent of perfect agreement between pairs of raters across all 36 items was 65% for women, 65% for men. These figures are comparable to the 72% and 65% median complete agreement figures cited for early rater reliability studies of the SCT (Hoppe, 1972; Cox, 1973), but slightly lower than those cited by Loevinger (1970) in her early work on rater reliability (median complete agreement, 77%). Mean percent agreement within a half stage across 36 items was 89% for women, 87% for men in the present study. These agree closely with the figures reported by Hoppe (1972) and Cox (1973) for half stage agreement, 89% and 84% respectively. In Loevinger's sample, the median correlation between the two ratings per item was .75. In the present study, the mean correlation between the two ratings per item was.68 for women, .70 for men.

Loevinger (1970) reported that median correlation between raters for total protocol ratings to be .86. Median complete agreement was 61%; median agreement within a half stage, 94%. For total protocol ratings in the present study, the correlation between all pairs of intuitive ratings with final TPR was .80 for women and .88 for men. For individual raters the median correlation between each rater and final TPR was .90 for women and .95 for men. Percent total agreement between individual and final TPRs was 79% for men, 60% for women. Agreement within half stage was 95% for men, 98% for women.

The information on reliability presented is in accord with previously published results and suggests the responses and protocols were scored competently by the undergraduate raters.

Descriptive Statistics

The mean ego development level of individuals in all groups clustered at the Self-Aware level, with nearly 40% of all subjects receiving an I-3/4 rating. This is typical for a university based sample and reflects the findings of other researchers (Holt, 1980). The mean ego development scores did not vary significantly between age groups. The mean of ego development level scores was eqivalent between sexes both among the college sample (men = 5.22, women = 5.26) and the retired sample (men = 4.88, women = 4.88). In the community sample scores significantly differed (men = 4.63, women = 5.53, $F(1, 62) = 14.18$, $p = .0004$).

The majority of subjects rated their health as excellent or good (28% and 45% respectively). Twenty percent rated their health as average, and only 6% (n=12) rated their health as poor. The 73% figure obtained in this sample of high health ratings is very similar to the 72% figure for individuals who rated their health as good or excellent in a 1980 national survey quoted by Rubenstein (1982) and to the 72% figure derived from a national survey reported in 1973 (National Opinion Research Center, 1973). It was not unusual to find individuals with interviewer-assessed health problems, such as being bed-ridden or suffering from cancer or multiple sclerosis, rating their health as good and in some cases excellent.

The mean prorated WAIS-R Verbal and Performance Scale IQ scores were in the high average range (Wechsler, 1981). Only 19% of the individuals in this sample had Verbal scores below 100. Given that only four subscales were administered, the IQ scores obtained are technically invalid and probably also inflated, but such above average scores are to be expected for a university based sample. Further descriptive statistics on subjects and on measures' scores may be found in Tables 1 and 2.

Insert Table 2 about here

Group Differences

The 96 subjects who were classified as healthy on the basis of their responses to the Health Problems Checklist differed in a number of ways from the remaining 96 subjects who endorsed more health

problems. The two groups differed in the self-rating of health, 4.20 vs. 3.77, $F(1, 190) = 11.53$, $p = .0008$, with healthier subjects scoring higher. The groups also differed in educational level, 5.01 vs. 4.19, $F = 11.25$, $p = .001$; Affect Balance Scale scores, 6.8 vs. 5.9, $F = 9.49$, $p = .002$; Verbal intelligence scores, 116.4 vs. 109.7, $F = 9.05$, $p = .003$; and in ego development, 5.27 vs. 4.85, $F = 7.13$, $p = .008$, with healthier subjects scoring higher on all measures.

Comparisons among the three age groups (n = 64 in each) also revealed differences. On the average, retired subjects scored about two standard score points below the community group (retired = 8.01, community = 10.90) and four standard points below the college group (12.18) on the two performance subscales of the WAIS-R, $F(2, 189) = 36.05$, $p < .001$. A posteriori Newman-Keuls analyses run to determine significant group differences showed all three groups to differ from each other at the .05 level. The average Verbal standard score of retired subjects was about one point lower than the other two groups (retired = 10.54, community = 11.97, college = 11.54), $F = 5.83$, $p = .003$. The retired group scored significantly lower than the other two groups according to a Newman-Keuls analysis.

Older subjects reported more health complaints on the Health Problems Checklist than did younger subjects (retired = 16.30, community = 10.63, college = 7.19), $F = 11.37$, $p < .001$. According

to the Newman-Keuls analysis retired subjects endorsed significantly more health problems than did the other two groups. Retired people, however, rated their affect as more positive than both the college and community groups (retired = 7.03, community = 6.08, college = 6.09), $F = 4.59$, $p = .011$. Again, a Newman-Keuls analysis showed the retired group to score significantly differently from the other two groups. Such an age difference for subjective well-being has not been reported in the literature .

The groups also differed in educational level (retired = 4.63, community = 4.98, college = 4.16), $F = 3.74$, $p = .025$. The college group differed significantly from the community group according to a Newman-Keuls analysis, but the retired sample did not differ from the other two groups.

As for sex differences, males tended to have achieved a slightly higher level of educational training, 4.91 vs. 4.28, $F(1, 190) = 6.26$, $p = .013$. Females obtained a slightly higher level of ego development, 5.22 vs. 4.91, $F = 3.95$, $p = .048$.

Correlational Analyses

Zero-order correlation matrices among the variables related to the self-rating of health were computed separately for each age group in the sample. In addition, a separate matrix was computed for elderly subjects aged 75 or older. As recent studies have shown (LaRue et al., 1979), such subjects tend to present responses differently than do the

elderly subjects aged 65-74. Throughout, correlations are reported as significant when $p < .05$.

Among college students, the self-rating of health was significantly related to affect balance scores ($r = .26$) and inversely related to checklist endorsements ($r = -.25$). Ego development level was strongly associated with Verbal IQ score ($r = .54$), but some of this may be accounted for by the association between Verbal IQ and educational level ($r = .33$).

Insert Table 3 about here

In the community sample, the self-rating of health was significantly related to educational level ($r = .34$), ego development level ($r = .33$), and Verbal IQ score ($r = .37$). Verbal IQ score was also related to ego development level ($r = .43$), but this relationship was weaker than that found in the college sample. Affect Balance Scale scores were not related to the self-rating of health ($r = .15$), but were associated with education ($r = .34$).

Insert Table 4 about here

In the retired sample, the self-rating of health was strongly related to affect balance scores ($r = .52$) and to a lesser extent to Verbal IQ scores ($r = .25$). Health Problems Checklist scores were inversely related to the self-rating of health ($r = -.26$). Affect Balance Scale scores were strongly associated with all other variables except age. Educational level bore a strong relationship to Verbal IQ scores ($r = .73$), ego development level ($r = .51$), and checklist sums ($r = 0.47$).

Insert Table 5 about here

For adults aged 75 or older, the role of gender took on an increased importance in relationship to other variables. In this group the strength of the relationship of sex to education, Verbal IQ, Affect Balance Scale scores, and the self-rating of health nearly doubled for men, as did the increase in the relationship between sex and health problems for women, over the relationships found in the retired sample overall. Age bore an interesting positive relationship to the self-rating of health (r = .41). Affect Balance Scale scores were again strongly associated with all other variables except age.

Insert Table 6 about here

Variables Influencing the Self-Rating of Health

Stepwise regression analyses were computed separately for each age group in order to determine the amount of unique variance contributed to health self-ratings by each variable of interest.

Among college students, Affect Balance Scale scores were the only significant predictors of health self-ratings, with the Health Problems Checklist score and Verbal IQ score contributing slightly to health self-rating variance (Table 3). Both educational level and ego development level were significant predictors of health self-ratings for community residents (Table 4). The variables of sex, age, and Health Problems Checklist score added only slightly to explained

variance. Among retired residents (Table 5) only Affect Balance Scale scores were significant predictors of the self-rating of health. This measure alone accounted for 27% of the variance in health self-ratings. For those subjects aged 75 or older, three variables contributed significantly to self-ratings: Affect Balance Scale scores, age, and Health Problems Checklist sums. Together, they shared 56% of the variance with health self-ratings (Table 6).

SCL-90-R Data. A correlation matrix (zero-order) for the SCL-90-R scale scores and other selected variables was computed. Age exhibited a strong negative correlation with nearly every scale of the SCL-90-R (-.13 to -.48). The self-rating of health also correlated negatively with many of the scales (-.08 to -.36). Verbal IQ scores and Affect Balance Scale scores also correlated negatively with several of the scales (-.07 to -.37). The only positive significant correlation of a single SCL-90-R scale was between the Obsessive-Compulsive scale and the Health Problems Checklist (r = .28, p = .026). As one would expect, Affect Balance Scale scores were negatively correlated with the Depression scale (r = -.24, p = .05). Due to a curvilinear relationship, ego development appeared not to be related to SCL-90-R scale scores (see Test of Hypotheses, #1).

Insert Table 7 about here

Additional Regression Analyses

A separate stepwise regression analysis was performed using information from the SCL-90-R from the 64 subjects who completed that questionnaire. It was thought necessary to recompute a prediction equation of health

self-ratings using the SCL-90-R data in order to determine whether it would serve as a more robust measure of objective health problems than the Health Problems Checklist. Table 7 shows that among the 64 subjects, the Global Severity Index (The GSI represents the best single indicator of the current level or depth of disorders as presented in the SCL-90-R.) was the only significant predictor of health self-ratings, yet it only contributed 7% of the variance in such ratings. Such results suggest that the GSI scores contribute little information not already supplied by the Health Problems Checklist as far as predicting health self-ratings.

Test of Hypotheses

1. Less complex people, according to the ego development paradigm, will tend to endorse more physical complaints on a health problems checklist and the somatization scale of a symptoms checklist than people of more complex stages of ego development.

The relationship of ego development to the perception of health was substantiated in part (see Table 8). People of less complex ego development levels endorsed more health problems than did people of more complex levels, $F(4, 187) = 3.32$, $p = .01$. No significant differences were found among people of differing ego development levels and their responses to the SCL-90-R scales, including the somatization scale. However, a consistent relationship among ego level and SCL-90-R

Insert Table 8 about here

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scales did emerge, with people at the Conformist (I-3) or lower stages endorsing more complaints, with Conscientious (I-4) individuals endorsing slightly fewer symptoms, and with those at the Self-Aware Level endorsing the fewest symptoms. This same pattern was followed by the summary scores of the SCL-90-R.

2. Less complex will rate their health as poorer than more complex people, given equivalent degrees of health concerns as determined by a physician.

Because of the small number of physician completed checklists returned, subjects could not be adequately compared on the basis of severity of objectively assessed health problems. Of those checklists returned, the zero-order correlation of physician ratings with self-ratings on the checklists was .77, $p < .001$ ($n = 19$). With the addition of checklists from two subjects in the 75 or older group, the correlation dropped to .33, p n.s.

If one assumes from the .77 correlation between the subsample of subjects' and physicians' ratings on the Health Problems Checklist that subjects in general are reasonably accurate estimators of their health problems, one can cautiously test hypothesis 2 (minus subjects aged 75 and older, who may not be as

accurate in assessing their health problems). In then looking at the relationship of ego development to the self-rating of health, one finds the relationship becoming significant, $F(4, 160) = 3.10$, $p = .046$.

Future researchers may wish to select subjects on the basis of variation in reporting of health problems rather than selecting a random subsample in order to test this hypothesis more robustly.

3. Less complex people will evidence higher scores on a measure of subjective well-being and lower scores on scales of a symptoms checklist measuring psychological distress than will more complex individuals.

This hypothesis was in fact contradicted. People at more complex stages of ego development exhibited more positive affect than those at less complex stages, $F(4, 187) = 4.66$, $p = .0013$ (see Table 19). Again, no significant differences were found on the SCL-90-R scales.

Conclusions

In this study, it was discerned that Affect Balance scores contributed more variance to self-ratings of health than did checklist scores on the Health Problems measure, suggesting that how an individual feels about his/her health is more important than the number or severity of health ailments present. Snow and Crapo (1982) also found measures of subjective

well-being correlated with self-ratings of health.

That the self-rating of health is marginally associated with scores on a health problems checklist shows that people are not ignorant of their health condition, but their health ratings expand beyond a simple statement of physical condition. With increasing age people apparently lower their standards for what constitutes good health, rating their health as good in the presence of many ailments. Still, this leaves much variability unexplained. Satisfaction with health condition appears to be more indicative of good health ratings than severity or even presence of numerous health ailments, particularly for college age and retired people.

That educational level and ego development scores are significant predictors of health self-ratings among community residents but not among other respondents suggests that community subjects share a different view of the requirements of good health. These results are similar to those of Graney and Zimmerman (1980-81) in which among 2,797 older adults aged 65 or older, level of education, financial adequacy, and self-concept accounted for 28% of variance in self-rated health.

Before interpreting these differences between samples, it is necessary to look at models of perceived health. Garrity, Somes, and Marx (1978) discuss two models of perceived health. In one,

"perceived health might be viewed as a direct result of actual clinically-measured health status." (p. 80) Neither their results nor the results of the present study support this view strongly. In the second model, "perceived health results directly from the subjective psychological malaise experienced by the individual." (p. 80) Persons experience this malaise as illness and subsequently rate their health as lower. The strong association between subjective well-being and the self-rating of health in the present study lends support to this view.

Garrity et al. (1978) elaborate on their models, reporting that those who perceive psychophysiological strain in their lives may attribute it to physical illness and report it as such. Whether they do or not may depend on adaptive capabilities such as those associated with their first model. Life is continually presenting individuals with challenges which demand adaptive responses. Failing to meet the challenge, health problems may develop in the areas in which the individual is vulnerable. Whether the individual will express emotional or physiological vulnerabilities is unclear. In this sense the two models are indistinct.

Mechanic (1980) attempts to merge the two views as follows: "the person's psychological state may contribute to the occurrence of bodily dysfunction and symptoms by direct influence or more

indirectly by changing habit patterns and behavior and thus increasing vulnerability." (p. 146) Not only will the person's psychological state present symptoms which may be labelled as illness (Model 2), but it may cause the individual to act in ways to promote or hinder his/her actual health status (Model 1). Both ideas fit into Larson's (1978) statement that more successful people (those scoring higher on measures of subjective well-being) have access to better resources to deal with negative life situations, both intrinsic personality factors (positive outlook on life) and beneficial SES factors such as education and more access to health care resources due to higher income. The role of education and self-rating of health is one example of this integrated model. For community residents, educational level and ego development may govern the use of adaptive behaviors relevant for these subjects but less so for college age and retired subjects.

To elaborate upon this idea, one must look further at the theory of ego development. As one examines progressively more complex stages of ego development one encounters a series of increasingly complex adaptive behaviors. In this sense ego development bears an intuitive role as a moderator variable in the reaction to life stress and the reporting of perceived health. Individuals may perceive health as good or bad depending upon coping mechanisms applied successfully or unsuccessfully at each level. In this

sense, the self-rating of health could theoretically represent the individual's assessment of his/her ability to cope with health problems, or it could represent a guage to interpret the appropriateness of individually selected coping mechanisms, differentially selected on the basis of personality characteristics, such as ego development.

Future researchers should select individuals on the basis of extreme scores on ego development level and chronic health problems in order to better delineate the relationship between ego development level and the perception of health. The complex relationship between personality variables, SES factors, and physical well-being needs to be formally addressed. Many interdependent relationships are present in this area, shown in this study by the reciprocal relationship of the self-rating of health and subjective well-being. Research suggests that the direction of causation is from positive mental health to maintenance of physical health (Vaillant, 1979). Yet, much of the variance in health and well-being measures is unexplained. Extensive longitudinal research or panel data may be the only way to determine the causal interrelation of personality and SES variables to the perception of health. Descriptive studies investigating the behavioral correlates of ego development and different coping strategies used by individuals at differing ego

development stages may add much to our understanding of the perception of health.

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Table 1

Mean and Standard Deviation for Age, Ego Development, Education, and Checklist Scores

Group		Age	Ego	Ed	SRH	CKL	BSA	n
Healthy:	Mean	20.84	5.45	4.32	4.19	3.10	6.13	32
College	S.D.	2.66	.85	.87	.75	2.09	1.52	
Community		39.25	5.09	5.44	4.16	5.44	6.31	32
		7.98	1.00	1.88	.88	1.97	2.48	
Retired		72.90	5.28	5.25	4.25	6.38	8.06	32
		6.71	1.02	2.38	.62	3.85	1.88	
Less healthy:	Mean	20.06	5.03	4.03	3.81	11.38	5.97	32
College	S.D.	2.31	1.33	.69	.86	5.15	1.69	
Community		42.53	5.06	4.53	3.94	15.81	5.84	32
		8.02	1.13	1.46	.80	7.73	1.70	
Retired		73.72	4.47	4.00	3.56	26.22	6.00	32
		9.81	1.05	2.02	1.22	17.93	2.24	

LEGEND:

AGE = years

table continues

Table 1 continued

EGO = level of ego development, 4 = Conformist stage, 5 = Self-Aware Level

ED = level of education, 4 = some college, 6 = college degree

SRH = self-rated health score, 3 = Fair or average, 4 = Good

CKL = weighted sum of endorsements on Health Problems Checklist

BSA = Affect Balance Scale scores, higher scores represent more positive affect

Table 2

Mean and Standard Deviation for IQ Scores

		VAV	VIQ	PAV	PIQ	n
Healthy:						
College	Mean	11.92	116.26	11.47	111.45	32
	S.D.	1.84	12.51	2.15	16.61	
Community		12.27	115.94	10.73	111.25	32
		2.18	14.88	2.85	18.67	
Retired		11.52	116.86	9.13	119.81	32
		2.70	16.64	3.13	18.10	
Less healthy:	Mean	11.20	112.25	12.92	121.81	32
College	S.D.	2.41	15.87	2.41	16.54	
Community		11.67	111.66	11.06	113.69	32
		2.30	15.37	3.11	21.03	
Retired		9.56	105.22	6.89	103.31	32
		2.67	15.88	2.78	20.06	

LEGEND: VAV = average standard score of two Verbal subscales, Vocabulary and

table continues

Table 2 continued

Comprehension, of WAIS-R

VIQ = prorated Verbal IQ score

PAV = average standard score of two Performance subscales, Block Design and Object Assembly, of WAIS-R

PIQ = prorated Performance IQ score

Table 3

Stepwise Multiple Regression Analysis of Variables Contributing to the Self-rating of Health among College Students

Variable	Multiple *R*	Cumulative Variance	Simple *r*
Affect Balance score*	.262	.07	.26
Health Problems Checklist sum	.345	.12	-.25
Verbal IQ score	.378	.14	-.09

n = 64

* = *p* <.05 All variables entered that contributed at least one per cent of variance.

Table 4

Stepwise Multiple Regression Analysis of Variables Contributing to the Self-rating of Health among Community Residents

Variable	Multiple R	Cumulative Variance	Simple r
Educational level*	.337	.11	.34
Ego development*	.439	.19	.33
Sex	.472	.22	.09
Age	.491	.24	.08
Health Problems Checklist sum	.500	.25	-.19

n = 64

* = p < .05 All variables entered that contributed at least one per cent of variance.

Table 5

Stepwise Multiple Regression Analysis of Variables Contributing to the Self-rating of Health among Retired Residents

Variable	Multiple R	Cumulative Variance	Simple r
Affect Balance score*	.522	.27	.52
Age	.541	.29	.05

n = 64

* = p < .05 All variables entered that contributed at least one per cent of variance.

Table 6

Stepwise Multiple Regression Analysis of Variables Contributing to the Self-rating of Health among Retired Residents, Aged 75 and Older

Variable	Multiple *R*	Cumulative Variance	Simple *r*
Affect Balance score*	.518	.27	.52
Age*	.671	.45	.41
Health Problems Checklist sum*	.749	.56	-.49
Educational level	.761	.59	.30

n = 24

* = *p* < .05 All variables entered that contributed at least one per cent of variance.

Table 7

Stepwise Multiple Regression Analysis of Variables Contributing to the Self-rating of Health among Subsample of Subjects who Completed the SCL-90-R

Variable	Multiple R	Cumulative Variance	Simple r
Global Severity Index*	.266	.07	-.27
Health Problems Checklist sum	.316	.10	.10
Affect Balance score	.367	.13	.22
Sex	.389	.15	-.07

n = 64

* = $p < .05$ All variables entered that contributed at least one per cent of variance.

Table 8

Mean and Standard Deviation for Checklist Scores by Level of Ego Development

EGO		SRH	CKL	BSA	n
0	Mean	3.67	11.67	4.58	12
	S.D.	.89	8.15	1.51	
1		3.69	16.28	5.69	32
		.82	14.47	2.31	
2		4.03	11.51	6.72	87
		.95	12.95	2.02	
3		4.06	8.44	6.52	48
		.86	5.38	1.80	
4		4.38	6.15	7.23	13
		.65	6.76	2.17	
	$F(4, 187)$ =	2.12	F = 3.32	F = 4.66	
	p =	.08	p = .01	p = .001	

LEGEND: EGO = level of ego development

0 = Impulsive and Self-Protective Stages

1 = Conformist Stage

2 = Self-Aware Level

3 = Conscientious Stage

4 = Individualistic and Autonomous Stages

SRH = Self-rated health score, 3 = Fair or average, 4 = Good

table continues

Table 8 continued

CKL = weighted sum of endorsements on Health Problems Checklist

BSA = Affect Balance Scale score, higher scores represent more positive affect